

**STL**

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Certificate of Analysis

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ANALYTICAL REPORT

Trace Analysis

Lot #: I6J040142

Mike Abel

Trace Analysis
6701 Aberdeen Ave., Ste 9
Lubbock, TX 79424

SEVERN TRENT LABORATORIES, INC.

A handwritten signature in black ink, appearing to read "Neal Salcher".

Neal J. Salcher
Project Manager

October 9, 2006

American Council of Independent Laboratories
International Association of Environmental Testing Laboratories

Case Narrative

STL LOT NUMBER: I6J040142

This report contains the analytical results for the nine samples received under chain of custody by Severn Trent Laboratories (STL) on October 4, 2006. These samples are associated with your Trace Analysis project.

All samples were received in good condition and within temperature requirements.

All applicable quality control procedures met method-specified acceptance criteria except where noted in the case narrative or flagged on the result pages.

This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions, please feel free to call me at 512-310-5215.

EXECUTIVE SUMMARY - Detection Highlights

I6J040142

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>
NO DETECTABLE PARAMETERS				

ANALYTICAL METHODS SUMMARY

I6J040142

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>
Nonhalogenated Organics Using GC/FID	SW846 8015B

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

I6J040142

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
JFL3N	001	104711	09/28/06	
JFL3R	002	104712	09/28/06	
JFL3X	003	104713	09/28/06	
JFL30	004	104714	09/28/06	
JFL33	005	104715	09/28/06	
JFL34	006	104716	09/28/06	
JFL36	007	104611	09/27/06	
JFL39	008	104612	09/27/06	
JFL4A	009	104613	09/27/06	

NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

QC DATA ASSOCIATION SUMMARY

I6J040142

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SOLID	SW846 8015B		6277347	6277236
002	SOLID	SW846 8015B		6277347	6277236
003	SOLID	SW846 8015B		6277347	6277236
004	SOLID	SW846 8015B		6277347	6277236
005	SOLID	SW846 8015B		6277347	6277236
006	SOLID	SW846 8015B		6277347	6277236
007	SOLID	SW846 8015B		6277347	6277236
008	SOLID	SW846 8015B		6277347	6277236
009	SOLID	SW846 8015B		6277347	6277236

Trace Analysis Inc

Client Sample ID: 104711

GC Semivolatiles

Lot-Sample #...: I6J040142-001 Work Order #...: JFL3N1AA Matrix.....: SOLID
Date Sampled...: 09/28/06 Date Received..: 10/04/06 MS Run #.....: 6277236
Prep Date.....: 10/04/06 Analysis Date..: 10/06/06
Prep Batch #...: 6277347 Analysis Time..: 10:24
Dilution Factor: 1
% Moisture.....: 100 Method.....: SW846 8015B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Ethylene glycol	ND	** 25	mg/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
n-Butanol	116	(50 - 142)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

Trace Analysis Inc

Client Sample ID: 104712

GC Semivolatiles

Lot-Sample #....: I6J040142-002 Work Order #....: JFL3R1AA Matrix.....: SOLID
Date Sampled....: 09/28/06 Date Received...: 10/04/06 MS Run #.....: 6277236
Prep Date.....: 10/04/06 Analysis Date...: 10/05/06
Prep Batch #....: 6277347 Analysis Time...: 20:23
Dilution Factor: 1
% Moisture.....: 100 Method.....: SW846 8015B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Ethylene glycol	ND	** 25	mg/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
n-Butanol	128	(50 - 142)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

Trace Analysis Inc

Client Sample ID: 104713

GC Semivolatiles

Lot-Sample #....: I6J040142-003 Work Order #....: JFL3X1AA Matrix.....: SOLID
Date Sampled....: 09/28/06 Date Received...: 10/04/06 MS Run #.....: 6277236
Prep Date.....: 10/04/06 Analysis Date...: 10/05/06
Prep Batch #....: 6277347 Analysis Time...: 20:52
Dilution Factor: 1
% Moisture.....: 100 Method.....: SW846 8015B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Ethylene glycol	ND	** 25	mg/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
n-Butanol	137	(50 - 142)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

Trace Analysis Inc

Client Sample ID: 104714

GC Semivolatiles

Lot-Sample #...: I6J040142-004 Work Order #...: JFL301AA Matrix.....: SOLID
Date Sampled...: 09/28/06 Date Received...: 10/04/06 MS Run #.....: 6277236
Prep Date.....: 10/04/06 Analysis Date...: 10/05/06
Prep Batch #...: 6277347 Analysis Time...: 21:22
Dilution Factor: 1
% Moisture.....: 100 Method.....: SW846 8015B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Ethylene glycol	ND	** 25	mg/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
n-Butanol	114	(50 - 142)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

Trace Analysis Inc

Client Sample ID: 104715

GC Semivolatiles

Lot-Sample #....: I6J040142-005 Work Order #....: JFL331AA Matrix.....: SOLID
Date Sampled....: 09/28/06 Date Received...: 10/04/06 MS Run #.....: 6277236
Prep Date.....: 10/04/06 Analysis Date...: 10/05/06
Prep Batch #....: 6277347 Analysis Time...: 21:51
Dilution Factor: 1
% Moisture.....: 100 Method.....: SW846 8015B

REPORTING

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>	<u>UNITS</u>
Ethylene glycol	ND	** 25	mg/kg

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
n-Butanol	114	(50 - 142)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

Trace Analysis Inc

Client Sample ID: 104716

GC Semivolatiles

Lot-Sample #...: I6J040142-006 Work Order #...: JFL341AA Matrix.....: SOLID
Date Sampled...: 09/28/06 Date Received...: 10/04/06 MS Run #.....: 6277236
Prep Date.....: 10/04/06 Analysis Date...: 10/05/06
Prep Batch #...: 6277347 Analysis Time...: 22:21
Dilution Factor: 1
% Moisture.....: 100 Method.....: SW846 8015B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Ethylene glycol	ND	** 25	mg/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
n-Butanol	104	(50 - 142)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Trace Analysis Inc

Client Sample ID: 104611

GC Semivolatiles

Lot-Sample #....: I6J040142-007 Work Order #....: JFL361AA Matrix.....: SOLID
Date Sampled....: 09/27/06 Date Received...: 10/04/06 MS Run #.....: 6277236
Prep Date.....: 10/04/06 Analysis Date...: 10/05/06
Prep Batch #....: 6277347 Analysis Time...: 22:50
Dilution Factor: 1
% Moisture.....: 100 Method.....: SW846 8015B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Ethylene glycol	ND	** 25	mg/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
n-Butanol	115	(50 - 142)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

Trace Analysis Inc

Client Sample ID: 104612

GC Semivolatiles

Lot-Sample #...: I6J040142-008 Work Order #...: JFL391AA Matrix.....: SOLID
Date Sampled...: 09/27/06 Date Received...: 10/04/06 MS Run #.....: 6277236
Prep Date.....: 10/04/06 Analysis Date...: 10/05/06
Prep Batch #...: 6277347 Analysis Time...: 23:20
Dilution Factor: 1
% Moisture.....: 100 Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethylene glycol	ND	** 25	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	110	(50 - 142)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Trace Analysis Inc

Client Sample ID: 104613

GC Semivolatiles

Lot-Sample #....: I6J040142-009 Work Order #....: JFL4A1AA Matrix.....: SOLID
Date Sampled....: 09/27/06 Date Received...: 10/04/06 MS Run #.....: 6277236
Prep Date.....: 10/04/06 Analysis Date...: 10/05/06
Prep Batch #....: 6277347 Analysis Time...: 23:49
Dilution Factor: 1
% Moisture.....: 100 Method.....: SW846 8015B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Ethylene glycol	ND	** 25	mg/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
n-Butanol	119	(50 - 142)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: I6J040142 Work Order #...: JFM091AA Matrix.....: SOLID
MB Lot-Sample #: I6J040000-347 Prep Date.....: 10/04/06 Analysis Time...: 15:56
Analysis Date...: 10/05/06 Prep Batch #...: 6277347
Dilution Factor: 1

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Ethylene glycol	ND	25	mg/kg	SW846 8015B

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
n-Butanol	105	(50 - 142)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #....: I6J040142 Work Order #....: JFM091AC Matrix.....: SOLID
LCS Lot-Sample#: I6J040000-347
Prep Date.....: 10/04/06 Analysis Date...: 10/05/06
Prep Batch #....: 6277347 Analysis Time...: 12:55
Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>	<u>METHOD</u>
Ethylene glycol	103	(85 - 115)	SW846 8015B

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
n-Butanol	98	(75 - 126)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: I6J040142 Work Order #...: JFM091AC Matrix.....: SOLID
LCS Lot-Sample#: I6J040000-347
Prep Date.....: 10/04/06 Analysis Date...: 10/05/06
Prep Batch #...: 6277347 Analysis Time...: 12:55
Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>METHOD</u>
Ethylene glycol	400	413	mg/kg	103	SW846 8015B

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
n-Butanol	98	(75 - 126)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: I6J040142 Work Order #...: JE34X1AD-MS Matrix.....: SOLID
 MS Lot-Sample #: I6I260303-001 JE34X1AE-MSD
 Date Sampled...: 09/21/06 10:45 Date Received...: 09/26/06 MS Run #.....: 6277236
 Prep Date.....: 10/04/06 Analysis Date...: 10/05/06
 Prep Batch #...: 6277347 Analysis Time...: 13:57
 Dilution Factor: 1 % Moisture.....: 5.7

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Ethylene glycol	100	(85 - 115)			SW846 8015B
	100	(85 - 115)	0.06	(0-30)	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	96	(50 - 142)
	95	(50 - 142)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: I6J040142 Work Order #...: JE34X1AD-MS Matrix.....: SOLID
 MS Lot-Sample #: I6I260303-001 JE34X1AE-MSD
 Date Sampled...: 09/21/06 10:45 Date Received...: 09/26/06 MS Run #.....: 6277236
 Prep Date.....: 10/04/06 Analysis Date...: 10/05/06
 Prep Batch #...: 6277347 Analysis Time...: 13:57
 Dilution Factor: 1 % Moisture.....: 5.7

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Ethylene glycol	ND	424	426	mg/kg	100		SW846 8015B
	ND	424	426	mg/kg	100	0.06	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	96	(50 - 142)
	95	(50 - 142)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

Report Attachment

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of the NELAC standards. All data have been found to be compliant with laboratory protocol except as otherwise noted.

Note that if this report contains tests performed for the following methods, the associated method deviations are applicable.

EPA 410.4, COD: Laboratory uses different analytical wavelength as specified by instrument manufacturer.

EPA 340.2; Fluoride: Preliminary Bellack distillation not performed.

EPA 624: The laboratory uses a different desorb time and purge volume than stated in the method.

EPA 8151A: Laboratory utilizes alternate extraction solvent.

Iowa OA1: Benzene, toluene, ethylbenzene and xylenes (BTEX) are not analyzed along with the Gasoline Range Organics if client does not require BTEX.

EPA TO-12: Samples not analyzed in duplicate.

EPA TO-14A and TO-15: Zero humidified nitrogen is used in place of air for method blanks.

TRRP Reporting Requirements

If this package contains reports requiring TRRP (Texas Risk Reduction Program) reporting criteria, the following information applies.

The REPORTING LIMIT is equivalent to the TRRP acronym MQL (method quantitation limit).

The MDL is equivalent to the TRRP acronym SQL (sample quantitation limit).



STL

CHAIN-OF-CUSTODY ADDENDUM

Lot No: ILJ040142

RECEIVED BY: [Signature]

COC NUMBER: _____

DATE/TIME RECEIVED: 10406 0918

QUOTE/PROFILE: 61969

UNPACKED DATE/TIME: 10406 1055

Do NOT Login moisture

CLIENT/PROJECT: TRAC ANALYSIS

SAMPLES LOGGED IN: _____ LOG-IN REVIEWED: _____

Number of Shipping Containers Received with Chain of Custody 1

[Signature] CC

VOC AIR / FILTER SAMPLES ☐ YES SEE SECTIONS 1.0, 2.0, & 6.0

1.0 CONTAINERS EXAMINED UPON RECEIPT: 1

Container Sealed: ☒ YES ☐ NO Custody Seal Signed/Dated: ☒ YES ☐ NO
Custody Seal Present: ☒ YES ☐ NO Containers checked for radioactivity: ☐ YES ☐ NO ☒ N/A
If seal not intact or Geiger counter reading >0.5 mR/hr, list air bill number of that container(s): _____

2.0 VOC CANISTERS EXAMINED UPON RECEIPT: _____

Canister Valves Closed: ☐ YES ☐ NO Samples Received Match Chain: ☐ YES ☐ NO
Canister Valves Capped: ☐ YES ☐ NO Other Equipment Received: ☐ YES ☐ NO
Valve Cap Tightened Properly: ☐ YES ☐ NO See Additional Comments (Section 5.0 and / or 7.0) ☐ YES ☐ NO
Packing Material Used: (circle) Chain-of-Custody form properly maintained: ☐ YES ☐ NO
None / Absorbent / Paper / Bubble Wrap Can Size: ☐ 6L ☐ 15L Other _____

3.0 SAMPLE TEMPERATURE UPON RECEIPT BY: 1 IR THERMOMETER #: 25

Temperature of the container(s):
Circle selection: TB = Temp. Blank and/or SC = Sample Container [acceptable tolerance 4°C ± 2°; (NC, WI: 1-4.4°C)]

TB	TB	TB	TB	TB	TB	TB	TB	TB	TB
SC 4.1	SC	SC	SC	SC	SC	SC	SC	SC	SC

If temperature is outside acceptable tolerance, Project Manager was notified (_____ PM). Date: _____ Time: _____

Samples received do not require cooling _____ OK to analyze samples: ☒ YES ☐ NO

PRESERVATION OF SAMPLES REQUIRED: ☒ NA ☐ YES ☐ VOA Samples VERIFIED BY: [Signature]

NOTE: pH CHECK OF VOLATILE SAMPLES PERFORMED AFTER ANALYSIS BY THE BENCH ANALYST.

Base samples are >pH 12: ☐ YES ☐ NO Acid preserved are <pH 2: ☐ YES ☐ NO

Cyanide samples checked for sulfides: ☐ YES Sulfide samples appear to be preserved with zinc acetate: ☐ YES ☐ NO

Samples checked for chlorine per specification (N.C.) ☐ YES Free chlorine present: ☐ YES ☐ NO

If sample preservation is outside acceptable tolerance, Project Manager was notified (_____ PM)

Date: _____ Time: _____ ☐ see pH adjustment form

VOLATILE SAMPLES FILLED COMPLETELY, IF NOT, LIST ID AND HEADSPACE OF VOA's CONTAINING BUBBLES EXCEEDING 6MM IN DIAMETER:

Sample ID	mm Headspace

Sample ID	mm Headspace

4.0 CONDITION OF BOTTLES/CONTAINERSVERIFIED BY:

Samples received match COC:

☒ YES ☐ NO

Bottles received intact:

☒ YES ☐ NO

See additional discrepancies/comments section:

☐ YES ☒ NO

Samples received from USDA restricted area:

☐ YES ☒ NO

Chain-of-Custody form properly maintained:

☒ YES ☐ NO

VOA trip blanks included:

☐ YES ☐ NO ☒ N/A**5.0 ADDITIONAL DISCREPANCIES**

Appears on COC		Appears on Label		
Sample ID	Date/Time	Sample ID	Date/Time	Comments

6.0 SHIPPING DOCUMENTATION:

Air/freight bill is available and attached to COC:

☒ YES ☐ NO

Air bill #:

Hand-delivered Carrier:

Date:

Time:

7.0 OTHER COMMENTS:**CORRECTIVE ACTION:**

Client's Name:

Informed verbally on:

By:

Client's Name:

Informed verbally on:

By:

Sample(s) processed "as is" comments:

Samples(s) on hold until:

If released, notify:

REVIEW:

Project Management:

Date:

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

